PES-0043

IN THE SPECIFICATION

Please amend the paragraph beginning at line 9 on page 1 and ending at line 6 on page 2 as follows.

Electrochemical cells are energy conversion devices, usually classified as either electrolysis cells or fuel cells. A proton exchange membrane electrolysis cell can function as a hydrogen generator by electrolytically decomposing water to produce hydrogen and oxygen gas, and can function as a fuel cell by electrochemically reacting hydrogen with oxygen to generate electricity. Referring to Figure 1, which is a partial section of a typical anode feed electrolysis cell 100 ("cell 100"), process water 102~~114~~ is fed into cell 100 on the side of an oxygen electrode (anode) 106~~104~~ to form oxygen gas 104~~116~~, electrons, and hydrogen ions (protons) 106~~118~~. The reaction is facilitated by the positive terminal of a power source 120 electrically connected to anode 116~~104~~ and the negative terminal of power source 120 connected to a hydrogen electrode (cathode) 114~~106~~. The oxygen gas 104~~116~~ and a first portion 108 of the process water exit cell 100, while protons 106~~118~~ and a second portion 110 of process water migrate across a proton exchange membrane 118~~102~~ to cathode 114~~106~~ where hydrogen gas 112 is formed.

Please amend the paragraph on page 6, lines 3-12 as follows.

In another embodiment, in an electrochemical cell comprising a first electrode; a second electrode; a membrane disposed between and in intimate contact with the first electrode and the second electrode; a first flow field in fluid communication with the first electrode opposite the membrane; a second flow field in fluid communication with the second electrode opposite the membrane, a method for managing fluid flow comprises introducing a quantity of fluid into the first flow field; passing the fluid through ~~a and~~ a graded, porous flow field member in fluid communication with the first flow field opposite the first electrode, wherein the flow field member comprises a porous support modified to provide a selected porosity, a selected hydrophobicity, or a combination thereof; and contacting the fluid with the first electrode.

Please amend the paragraph beginning on page 16, line 11 and ending on page 17, line 10 as follows.

The polymeric material~~maaterial~~ may itself be made conductive, typically by the incorporation of electrically conductive particulate materials as is known in the art. Suitable electrically conductive particulate materials include but are not limited to the above-mentioned electrically conductive metals and alloys and superalloys thereof, preferably copper and nickel. Also useful are non-conductive particles coated with conductive materials, for example silver-coated glass spheres, as well as conductive, particulate carbon, for example acetylene blacks, conductive furnace black, super-conductive furnace black, extra-conductive furnace black, vapor grown carbon fibers, carbon nanotubes, and the like. Copper, nickel, conductive carbon, or a combination thereof is presently preferred because of their conductivity, availability, low cost, and compatibility with the electrochemical cell environment. The particular shape of the particles is not critical, and includes spheres, plates, whiskers, tubes, drawn wires, flakes, short fibers, irregularly-shaped particles, and the like. Suitable particle sizes and amounts vary widely, and are readily determined by one of ordinary skill in the art depending on factors including but not limited to the particular materials chosen, the desired elastomeric characteristics and conductivity of the pressure pad, the cost of the materials, the size of the pressure pad, the method of manufacture, and other considerations. Regardless of the exact size, shape, and composition of the conductive fillers particles, they should be thoroughly dispersed through the polymeric resin. Such compositions and their method of manufacture have been described, for example, in U.S. Patent Nos. 4,011,360; 5,082,596; 5,296,570; 5,498,644; 5,585,038; and 5,656,690.